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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,311	04/02/2001	Shuji Hitomi	Q63901	7349

7590 07/23/2003  
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EXAMINER  
WINTER, GENTLE E

ART UNIT	PAPER NUMBER
1746	

DATE MAILED: 07/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/822,311

Applicant(s)

HITOMI, SHUJI

Examiner

Gentle E. Winter

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 9-13, 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3, 5, 6, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Paganin et al, Journal of Applied Electrochemistry (1996). (Paganin). Claim 1 is directed to an electrode for fuel including a catalyst layer and a gas diffusion layer. The gas diffusion layer includes a porous polymer containing electro-conductive filler. The same is disclosed in the first column of page 297. Platinum is construed as the conductor.
2. As to claim 2, disclosing that gas diffusion layer further comprises an electro-conductive backbone in which said porous polymer is applied. Paganin discloses that the polymer is mixed with the Pt/C catalyst.
3. As to claim 3, further limiting claim 2 and disclosing that the electro-conductive backbone comprises an aggregate of carbon fibers, carbon cloth is disclosed in Paganin, inherently the carbon cloth includes carbon fiber.
4. As to claim 5, further limiting claim 2 and disclosing that the electro-conductive filler comprises a carbon particle. The disclosure of Pt/C filler includes a carbon particle.

5. As to claim 6, further limiting claim 2 and disclosing that the porous polymer comprises a fluoropolymer, Paganin, in the Experimental section discloses using PTFE (a fluoropolymer) as the porous fluoropolymer.

6. As to claim 14, disclosing a fuel cell comprising an electrode the same is disclosed at page 297 of the Paganin reference.

7. Claims 1-8 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 5,085,743 Reddy et al (Reddy).

8. As to claims 1-3 and 5, disclosing an electrode comprising a catalyst layer (see e.g. column 3, line 44 *et seq.*) comprising catalyst particle (preferably gold) and a gas diffusion layer comprising a porous polymer containing an electro-conductive filler, such as carbon particles (preferably carbon fibers).

9. As to claim 4, disclosing that the electro-conductive filler comprises a chopped carbon fiber, the same is disclosed at e.g. column 6, line 40 *et seq.*

10. As to claims 6 and 7, disclosing that said fluoropolymer comprises a polyvinylidene fluoride the same is disclosed by Reddy. See e.g. column 9, line 1 *et seq.*

Art Unit: 1746

11. As to claim 8, disclosing that the gas diffusion layer has a porosity of from 45% to 95%, the same is disclosed at see e.g. column 7, line 41 *et seq.* see especially line 66 *et seq.* Also see e.g. column 7, line 2 *et seq.*

12. As to claim 15, further limiting claim 8 and disclosing a fuel cell including the electrode of claim 8. The same is disclosed at e.g. column 11, line 60 *et seq.* especially at see e.g. column 12, line 1 *et seq.*

### ***Conclusion***

13. Applicant is put on notice that the invention, as currently claimed, may properly be subjected to additional restriction/election requirement. The current claims have been treated in this Official action because searching the various inventions did not present an undue burden. Nonetheless, substantive amendment of the claims, or the addition of new claims, which would require an additional search may result in an additional restriction/election requirement.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gentle E. Winter whose telephone number is (703) 305-3403. The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications. The direct fax number for this examiner is (703) 746-7746.

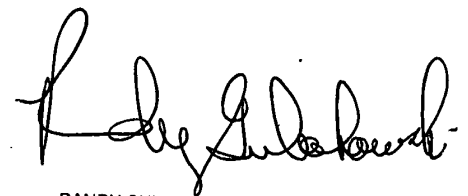
Application/Control Number: 09/822,311  
Art Unit: 1746

Page 5

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the receptionist whose telephone number is (703) 308-0661.

Gentle E. Winter  
Examiner  
Art Unit 1746

July 18, 2003

A handwritten signature in black ink, appearing to read "Randy Gulakowski", is written over a faint, rectangular background area.

RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700